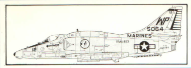
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McDONNELL DOUGLAS A-4 SKYHAWK variants

BY LINDSAY PEACOCK

Two A-4G Skyhawks of the Royal Australian Navy from VF-805 which operate from the Australian aircraft carrier HMAS Melbourne. Their shore base is Nowra, NSW. (RAN Official)

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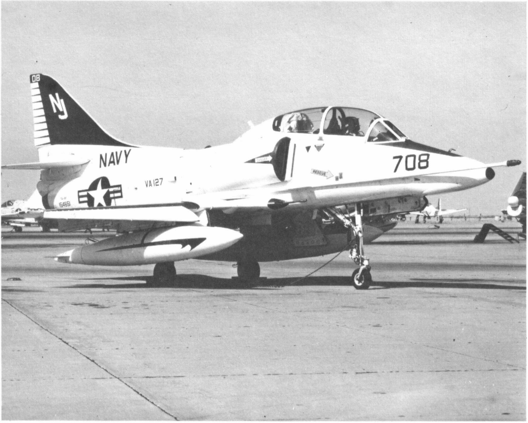


An immaculate VA-127 TA-4F in an unusual all-white paint scheme seen at Lemoore in about 1972. Subsequently converted to TA-4J standard, this aircraft is typical of the large number of two-seaters currently in Fleet training squadron use. Note that the cannon armament has also been retained. (H. M. Walker)

McDonnell Douglas A-4 SKYHAWK VARIANTS

Compiled by Lindsay Peacock, drawings by Ian Huntley

AFTER a service career with the United States Navy spanning nearly 20 years the A-4 Skyhawk has recently been retired from front-line units although it is still used in considerable numbers by various support and training squadrons of the Navy and of course remains in operational use with several units of the United States Marine Corps. In addition Skyhawks of various marks are extensively used by a number of overseas air arms including such far flung countries as Australia, Argentina and Israel. Today, some 22 years after the maiden flight of the prototype, over 2,900 examples have been ordered with limited production continuing for the USMC and export customers and there can be little doubt that examples of this small but versatile warplane will still be around for many years to come.

Initial design of the A-4 started during the early 1950s when, in common with a number of other designers, as a move to counter the ever more complex and expensive spiral surrounding the development of combat aircraft the design team led by Edward Heinemann at Douglas decided to turn to a relatively unsophisticated lightweight design concept for their next major project.

In early 1952 the resulting proposed fighter was brought to the attention of the US Navy who at this time were involved in the search for the successor to another Douglas design, namely the Skyraider which equipped a large number of Navy attack squadrons and which incidentally was destined to remain in operational service until the late 60s. Consequently the Navy requested Douglas to divert their attention to the task of producing a jet-powered replacement based on the design work already undertaken and, following the abandonment of the Douglas XA2D-1 Skyshark programme due to engine related problems, the initial Navy contract was awarded in June 1952 calling for the construction of two prototypes and 10 pre-production examples of what was to become the A4D.

The contract requirements called for a lightweight, single-engined, carrier-based high performance daylight attack aircraft capable of being employed in the close support, dive bombing and interdiction roles with either nuclear or conventional weaponry. In addition further contractual obligations called for the ability to operate without fighter escort in a possibly hostile environment and this last item was to be tested to the full in the skies over Vietnam more than a decade later.

Almost exactly two years later, on 22 June 1954, the prototype XA4D-1 (Bu. No. 137812) made a successful maiden flight and this marked the start of an intensive two year flight test and development programme which was completed in mid-1956 prior to the initial fleet deliveries which were made on 9 September 1956 to VA-72 Squadron then stationed at Quonset Point NAS, Rhode Island.

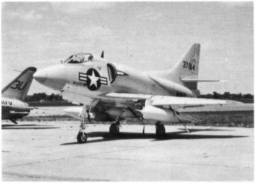
During September of the previous year initial carrier qualification trials had been carried out successfully on the USS *Ticonderoga* and shortly after, on 15 October 1955 at Muroc (now Edwards AFB), the A4D-1 had made the headlines when it established a new world record of 695·127 mph over a 500 kilometre closed circuit course, thus becoming the first attack aircraft type to hold such a record.

The initial Navy work up period was remarkably brief and VA-72 attained operational status on 26 October 1956 to be followed shortly after by the first Pacific Fleet unit, VA-93. Deliveries of aircraft to the USMC started in January 1957 to VMA-224 and a number of other Navy and Marine Corps squadrons had converted to this type by the time the 166th and last example rolled from the production line.

BASIC DESIGN

As a result of the weight saving approach adopted in the design, the basic airframe of the A-4 was largely conventional and this resulted in construction being relatively straightforward. Few, if any, innovative features were incorporated and the whole programme revolved around simplicity both of the structure and of the installed systems.

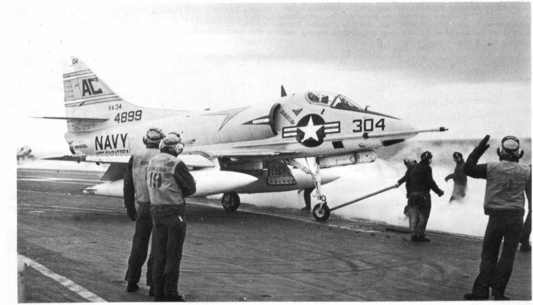
The airframe structure is made up of three major assemblies – wing, forward fuselage and rear fuselage – each being manufactured separately. Installation of the various items of equipment, control runs, and electrical systems takes place in each of the three sections before the mating of these in the final assembly area.

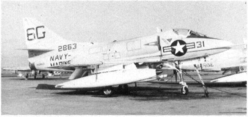


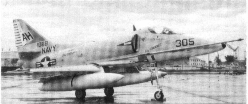
Above: Much of the early test flying was undertaken by initial production aircraft such as 137814 which was the second A4D-1 to come from the El Segundo line. (APN) Below: The revised rudder and refuelling probe introduced on the A4D-2 are visible in this VA-34 aircraft on board the USS Saratoga in the Mediterranean in 1961. (A. W. Hall)

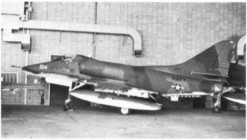
The fuselage sections are of all metal semi-monocoque construction with the forward section using a specially designed detachable nose cone housing the integrated avionics pack comprising navigation, identification and communications equipment mounted on the cockpit forward bulkhead. The cockpit design is aimed primarily at achieving maximum pilot efficiency and accordingly is of a very functional nature with instruments being combined where this is possible. Items considered unnecessary were omitted as a part of the weight reduction drive and further savings were made by the inclusion of the Douglas Escapac lightweight ejection seat which offered a 60 per cent saving when compared with the standard Navy ejector seats then in use.

A self sealing fuel tank is fitted directly behind the cockpit area and this in conjunction with the integral wing tanks offered an internal fuel capacity of 770 US gallons which could be supplemented by the use of external fuel tanks. An elliptical bulkhead separates the tank area from the forward end of the engine housing and this bulkhead bears the









From top to bottom: A typical A-4B used by Reserve Air Wing 87 at Alameda in December 1966. The use of the 'Navy-Marine' inscription was a common feature. (APN) A-4E, 151089/AH-305 of VA-163 seen at Sioux City during a cross country training flight. The squadron operated from USS Oriskany as part of CVW-16 for several years before joining CVW-21 and decommissioning in 1969. (APN) During 1969 the US Navy applied a number of experimental camouflage schemes to several types of front line fighter. A-4E 151074/514 wearing a two-tone green and brown scheme whilst serving with VA-155 (CVW-15) was one of these. (APN) A-4C 148578/NH-304 of VA-144 seen at Lemoore during 1967. (APN)

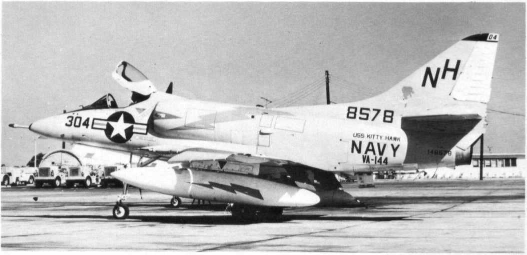
forward wing-fuselage attachment point loadings as well as providing support for the air intake passages. Also housed in the forward fuselage section was the Wright J65 turbojet engine (licence produced Armstrong-Siddeley Sapphire) which powered the first three major production models, being replaced by the P&W J52 in the A-4E and subsequent variants.

The rear fuselage section utilised three major frames with one connected to the rear wing spar, another bearing arrester hook loadings whilst the third was connected to the fin spar and also carried the variable incidence tailplane pivot connections. Mating of the fuselage sections was at the intermediate wing spar and was achieved by the use of just six bolts, this making the changing of engines a relatively straightforward task. The dorsal fairing and vertical tail surfaces were built as an integral part of the rear fuselage assembly and hydraulically powered air brakes were also fitted hinging out from the fuselage sides.

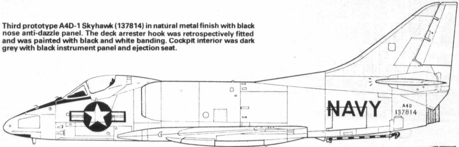
The wing section was manufactured as a single assembly comprising a three spar box with the spars being machined in one piece from solid plate. A special machine had been obtained to produce these spars but it developed a number of production difficulties in the early stages which resulted in a programme slippage of 15 weeks. Fortunately this did not have far reaching consequences and the problems were soon overcome. The overall continuity of the wing assembly greatly simplified the task of sealing the integral wing tanks. Automatic leading edge slats take up some 70 per cent of the wing and these are aerodynamically operated in accordance with flight conditions whilst the trailing edge is fairly evenly divided between split flaps and ailerons. Mating of the wing to the fuselage is by a total of ten steel bolts which connect to the major fuselage frames at the leading edge, front, intermediate and rear spars and trailing edge channel section.

Due to the small span of the A-4 wing, folding mechanisms were not required and this resulted in a considerable weight saving although it is worth mentioning here that at least one A-4A was fitted with both wing and vertical tail surface folding mechanisms but the reasons for this remain unclear at the present time.

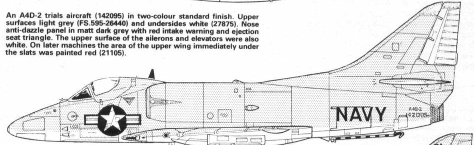
A tricycle undercarriage arrangement is used with all three members retracting forwards. The main wheel assemblies are housed in the wing section just inboard of the external store stations with fairings being provided for the oleo legs. The nose wheel retracts into a recess just below the cockpit. An unusual feature of the undercarriage is that the main wheels are rotated through 90 degrees during the retraction



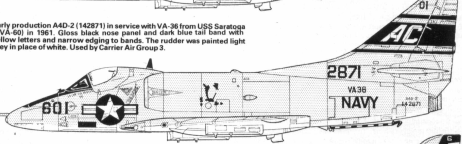
Third prototype A4D-1 Skyhawk (137814) in natural metal finish with black nose anti-dazzle panel. The deck arrester hook was retrospectively fitted and was painted with black and white banding. Cockpit interior was dark grey with black instrument panel and ejection seat.



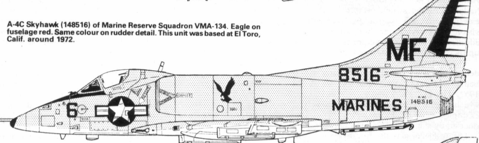
An A4D-2 trials aircraft (142095) in two-colour standard finish. Upper surfaces light grey (FS.595-26440) and undersides white (27875). Nose anti-dazzle panel in matt dark grey with red intake warning and ejection seat triangle. The upper surface of the ailerons and elevators were also white. On later machines the area of the upper wing immediately under the slats was painted red (21105).



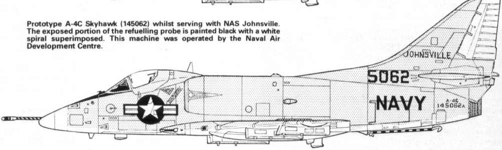
Early production A4D-2 (142871) in service with VA-36 from USS Saratoga (CVA-60) in 1961. Gloss black nose panel and dark blue tail band with yellow letters and narrow edging to bands. The rudder was painted light grey in place of white. Used by Carrier Air Group 3.

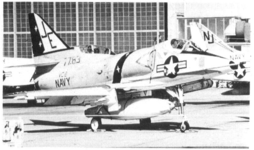


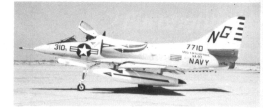
A-4C Skyhawk (148516) of Marine Reserve Squadron VMA-134. Eagle on fuselage red. Same colour on rudder detail. This unit was based at El Toro, Calif. around 1972.



Prototype A-4C Skyhawk (145062) whilst serving with NAS Johnsville. The exposed portion of the refuelling probe is painted black with a white spiral superimposed. This machine was operated by the Naval Air Development Centre.







Left: A-4C 147783/JE-13 of VC-2 at Miramar in October 1973 whilst waiting transfer to VC-7. The fading of the serial/designation block clearly apparent in this view is a common feature of the Skyhawk and occasionally resulted in the complete disappearance of this data. Above: A total of 80 Vietnam mission symbols are visible in this view of A-4C 147710/NG-310 of VA-93 at Lemoore during 1966. The patched up area at the base of the national insignia possibly indicated that this aircraft sustained battle damage. (APN)

process in order that they lie flat within the wing leading edge. Another interesting point is that due to the lack of an emergency hydraulic system the undercarriage is specially designed to allow the legs to drop aft and automatically lock as a result of air pressure.

Two Colt 20 mm Mark 12 cannons are installed with one being located in each wing root complete with 100 rounds of ammunition contained in rotating drums to ease feeding and minimise jamming problems. A wide variety of external stores, including conventional and nuclear bombs and guided and unguided missiles, can be carried on the three pylons fitted to the earlier variants. One hardpoint was situated on each wing just outboard of the wheel wells whilst the third was located on the fuselage centreline, but with the appearance of the A-4E a further two store stations were incorporated into the design. These were positioned outboard of the existing wing stations.

US NAVY AND MARINE CORPS VARIANTS

Even before the completion of the A4D-1 flight test programme development had started on a new improved version known as the A4D-2 which, in addition to being fitted with more advanced bombing and navigation systems, also introduced an in-flight refuelling capability thus offering a significant increase in the combat radius of the Skyhawk. Among other new features of the A4D-2 were the now familiar 'tadpole' rudder which utilised a central single skin with external stiffening ribs; a dual hydraulic system and provision for carrying the Bullpup air-to-ground missile. In addition the fuselage structure and tail assembly were beefed up increasing the manoeuvre limit to 7g at maximum speed.

The prototype made its first flight on 26 March 1956 and deliveries started some 18 months later with the first examples being sent to USMC squadron VMA-211 in September 1957. The first Navy unit to receive this variant was VA-12 which began to re-equip in February 1958 and some 542 examples were produced before being supplanted in production by the A4D-2N in the late 50s.

The A4D-2N was the first to possess limited all-weather attack capability and amongst the new equipment installed were a TPQ-10 ground control blind bombing system, an APG-53 terrain clearance radar set, an AJB-3 all altitude reference system and an automatic flight control system. This variant flew for the first time on 21 August 1958 with deliveries beginning in March 1960 to VMA-225 at Cherry Point MCAS, North Carolina. The first Navy squadron to receive the A4D-2N was VA-192 which started its conversion in May 1960 and by the time production ceased a total of 638 had been built, thus making it easily the most numerous variant. At the peak of Skyhawk operations in 1964 this mark served with no less than 23 Navy and nine Marine Corps front-line attack squadrons as well as a number of training units.

The next model to appear was the extensively modified A4D-5 which made its first flight on 12 July 1961. The most significant change concerned the Wright J65 engine which had been replaced by the more powerful Pratt and Whitney J52-P-6 of 8,500 lb. thrust and this offered increased range and load lifting capabilities. Avionics were improved with the provision of Doppler radar, TACAN and a radar altimeter whilst the bombing system was updated to AJB-3A standard.

To enable the A4D-5 to carry a greater weapons load an additional two underwing store stations were installed and the wing structure was strengthened.

Whilst the A4D-5 production was getting under way a revised unified nomenclature system of designation was introduced by the US Armed Forces and this resulted in a number of changes to Skyhawk designations with the various versions being reclassified as follows: A4D-1 became the A-4A, A4D-2 (A-4B), A4D-2N (A-4C) and A4D-5 (A-4E).

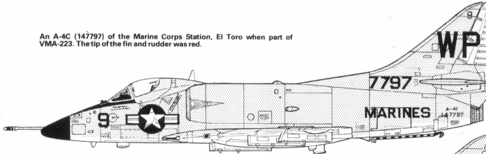
Production examples of the new A-4E began to reach the fleet during November 1962 and VA-23 subsequently became the first unit to be declared operational. A total of 499 A-4Es were produced between 1961 and 1965.

The last single-seat version to see service with the Navy in any numbers was the A-4F, first flown on 31 August 1966, and a total of 146 were built with fleet deliveries starting in June 1967. This version featured a number of design changes including the installation of a revised ejector seat with zero-zero capability, wing spoilers and nose wheel steering. Further power was the result of the installation of the uprated J52-P-8A engine which offered 9,300 lb. thrust. However, the most notable external change was the addition of a large dorsal fairing which housed much of this version's revised avionics equipment. Subsequently a modification programme involving the A-4E resulted in a considerable number also being fitted with an identical fairing. One hundred A-4Fs were later modified to take the J52-P-401 uprated engine and these featured slightly enlarged air intakes.

The first two-seater variant, initially known as the TA-4E, arose from a US Navy requirement for an operational trainer version and the initial order was placed during 1964. Major differences between this and the single-seaters are primarily the lengthening of the front fuselage section by 28 inches to house a second cockpit and the installation of the uprated J52-P-8A which was also used by the A-4F. This version, in common with the A-4F, also utilised nosewheel steering, wing spoilers and a rocket-powered ejection seat and by the time production examples began to appear it had been re-designated TA-4F.

Most of the electronics installations were carried in duplicate and amongst the items fitted were an ARC-51 UHF communications set, ARA-50 ADF, APN-141 radar altimeter and an ARR-69 auxiliary receiver. The APG-53A terrain clearance radar, APX-64 IFF radar beacon, ASN-41 navigation set and AJB-3A bombing system were only installed in the forward cockpit and the inclusion of these

An A-4C (147797) of the Marine Corps Station, El Toro when part of VMA-223. The tip of the fin and rudder was red.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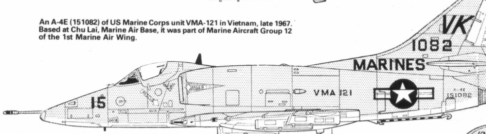
An A-4E (151082) of US Marine Corps unit VMA-121 in Vietnam, late 1967. Based at Chu Lai, Marine Air Base, it was part of Marine Aircraft Group 12 of the 1st Marine Air Wing.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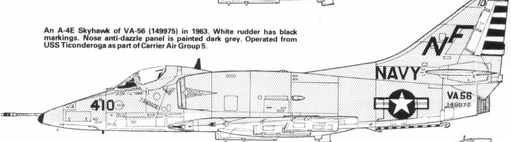
An A-4E Skyhawk of VA-56 (149975) in 1963. White rudder has black markings. Nose anti-dazzle panel is painted dark grey. Operated from USS Ticonderoga as part of Carrier Air Group 5.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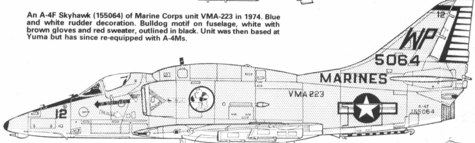
An A-4F Skyhawk (155064) of Marine Corps unit VMA-223 in 1974. Blue and white rudder decoration. Bulldog motif on fuselage, white with brown gloves and red sweater, outlined in black. Unit was then based at Yuma but has since re-equipped with A-4Ms.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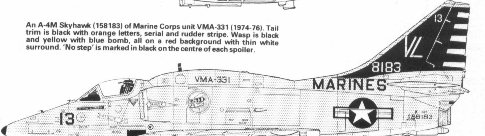
An A-4M Skyhawk (158183) of Marine Corps unit VMA-331 (1974-76). Tail trim is black with orange letters, serial and rudder stripe. Wasp is black and yellow with blue bomb, all on a red background with thin white surround. 'No step' is marked in black on the centre of each spoiler.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items meant that full attack capability was retained by the TA-4F although in fact it was only used operationally by the USMC. The addition of the second cockpit resulted in a reduction of the internal fuel capacity by some 140 gallons thus reducing the range.

The first of two TA-4E prototypes flew on 30 June 1965 with the second flying for the first time a little over a month later on 2 August and fleet deliveries began on 19 May 1966 to VA-125 at Lemoore. A total of 241 TA-4Fs were produced but many of these have since been modified to TA-4J configuration by removal of much of the aircraft's weapons system and at the present time very few TA-4Fs remain in use.

The next major production version to be acquired by the US Navy and Marine Corps was again a two-seater, albeit a much simplified version intended primarily for use by the US Navy's advanced training squadrons where this version, known as the TA-4J, initially supplanted and eventually replaced the ageing TF-9J Cougar. Although basically similar to the TA-4F it did not feature a weapons launch capability and the subsequent weight reduction resulted in the less powerful J52-P-6 being installed. The first flight of the TA-4J was made in May 1969 with initial deliveries following rapidly on 6 June 1969 to VT-21 and VT-22 at Kingsville, Texas. Since then the TA-4J has gone on to equip all Navy advanced jet training squadrons and it also serves with several Fleet training units as well as a number of USMC squadrons.

The A-4L resulted from a modification programme involving the A-4C which basically consisted of updating the avionics, weapons and control systems to a similar standard to that of the A-4F and these aircraft are easily distinguished by the presence of the dorsal avionics pack. The original J65 engine was retained and only three underwing store stations are provided. The initial conversion was made by Douglas for test purposes, whilst the remaining 99 were rebuilt by the Navy, using Douglas provided modification kits during overhauls at Naval Air Rework Facilities with first deliveries being made during December 1969. The A-4L was initially intended for use by a number of US Navy and Marine Corps reserve squadrons and it was not until 1975, when many of the Navy reserve attack squadrons had received early model A-7s, that examples of the A-4L began to arrive at regular fleet utility squadrons, albeit in small numbers, and both VC-2 and VC-7 have used this version alongside other marks of the Skyhawk.

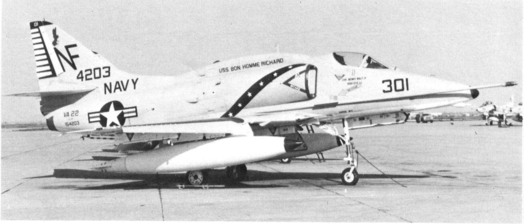
The last variant of the Skyhawk to be produced in any numbers for the US Armed Forces is the A-4M which was developed specifically for the US Marine Corps and which has many new features including an uprated engine, redesigned fin and in-flight refuelling probe, increased internal armament and inclusion of a braking parachute.

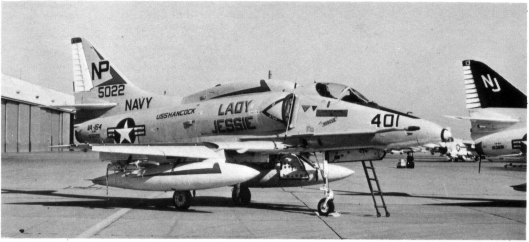
With the introduction of the Ling-Temco-Vought A-7A Corsair into US Navy squadrons towards the end of the 1960s production of single-seat Skyhawks for the US Armed Forces had been terminated and it seemed likely that, with the completion of two-seater production, procurement would cease. At this time the US Marine Corps, in line with the US Navy, was planning to equip its attack squadrons with the A-7 Corsair. However, due to the ever present shortage of available funds, the USMC undertook a review of the situation during 1969 and eventually decided to obtain the considerably cheaper A-4M which had been specially designed by McDonnell Douglas to meet Marine Corps requirements and which offered significant performance gains over previous production models.

The first flight of the A-4M took place on 10 April 1970 and development progressed satisfactorily with the Board of Inspection and Survey trials taking place at the Patuxent River Naval Air Test Centre during early 1971. Deliveries of the A-4M began on 16 April 1971 and the first squadron to receive the latest version was VMA-324 at Beaufort, SC. Subsequent deliveries have enabled all of the front-line Marine Corps attack squadrons to re-equip with the A-4M which is easily the most potent version of this versatile warplane.

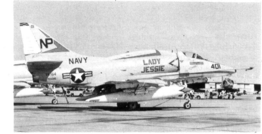
The most significant benefits resulted from the installation of the considerably more powerful Pratt and Whitney J52-P-408A engine rated at 11,200 lb. thrust and this offered better manoeuvrability, improved rate of climb, improved acceleration and field performance for the sacrifice of a small range reduction. Of the improvements in performance bestowed by the new engine perhaps the most spectacular were a rate of climb increase of slightly over 50 per cent and a reduction in take-off distance of over 25 per cent although considerable increases in other areas also resulted. The A-4M also incorporated a number of other features which had already appeared on export models but which were new to the USMC. Amongst these were increased electrical generating capacity, a redesigned angled in-flight refuelling probe to avoid radar interference, self-contained electrical starter, doubled internal ammunition capacity, installation of a braking parachute, increased fin area and a new gun sight. Also subjected to redesign was the canopy which when modified offered considerably improved all round vision.

A-4F, 154203 flown the CO of VA-22, Commander Henry Holt IV during 1969-70. The dorsal avionics pack introduced on the A-4F and subsequently retrofitted to a considerable number of A-4Es can be seen. (MAP)





Above and right: Slight variations in the colour scheme and serial presentation are apparent in these two views of 'Lady Jessie' both of which were taken at Lemoore during the seventies. The two A-4Fs concerned (155018/022) bear the names of different squadron commanders and in view of this, the significance of the aircraft name remains a mystery. (APN/M. C. Klaver)



The avionics, navigation and attack equipment installations have also been updated with a number of new items being provided and the basic equipment carried includes a Bendix automatic flight control system (AFCS); ARA-50 ultra high frequency direction finder; APG-53A terrain clearance radar; APX-64 IFF unit; ASN-41 inertial navigation system, APN-153 radar navigation set (Doppler); Elliot 546 head-up display unit; ARC-115 VHF/FM and ARC-52 UHF transceivers; ARN-52 TACAN; ARR-69 auxiliary UHF receiver and an APN-141 pulsed range tracking radar altimeter set. Some ECM equipment is also carried in fairings on both the nose and tail but details of this remain classified.

A total of five external store stations are provided and the A-4M is capable of carrying most of the weaponry presently included in the Naval inventory. Capacities of the various stations range from 3,575 lb. on the centreline, 2,240 lb. on the inboard wing position and 570 lb. on the outboard wing station and of these the two inboard and the centreline pylons can be used to supplement the internal fuel capacity by the fitting of long range fuel tanks. With full external fuel the maximum capacity is increased to 1,800 US gallons giving a maximum unrefuelled ferry range of 1,785 nautical miles. For use in the refuelling role a buddy pack can be carried on the centreline pylon.

In the traditional Marine Corps task of close support the A-4M can fly a distance of 150 miles with a 65 minute loiter period when carrying a 4,000 lb. load of conventional Mk. 81 250 lb. and Mk. 82 500 lb. bombs, while in the low-level strike role it can carry a 2,000 lb. load some 300 miles with five minutes being spent in the target area, although in this configuration 600 gallons of external fuel must be carried.

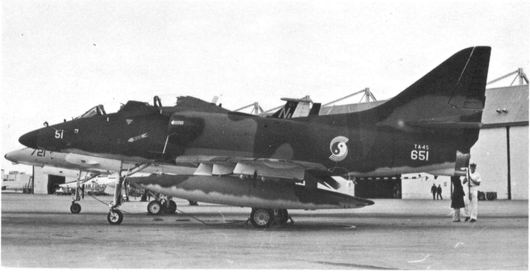
EXPORT VARIANTS

Well over 400 A-4s have now been exported to six nations with Israel being easily the biggest overseas customer and both new and remanufactured aircraft are included in this total. Surprisingly, in view of the relative simplicity and low price of the Skyhawk it was not until the mid-1960s, some ten years after the maiden flight of the prototype, that the first overseas sales were made but since then production of Skyhawks for export has played an important part in keeping the production lines open.

Argentina

The first overseas customer was Argentina who obtained an initial batch of 25 ex-US Navy A-4Bs for use by the IV Grupo Caza-Bombardero at Villa Reynolds. The first example of what was later to become known as the A-4P made its maiden flight from Tulsa, Oklahoma, on the last day of 1965 and deliveries to Argentina began in October 1966 after a period of aircrew training in the USA. A further batch of 25 aircraft were obtained during 1969 whilst in 1971 the Argentine Navy bought 16 essentially similar Skyhawks for use by the 1st Escuadron de Ataque at the Comandante Espora Naval Air Base. These aircraft, known as A-4Qs, have made a number of detachments to the Argentine Navy's sole aircraft carrier *25 de Mayo* which was formerly operated by the Dutch Navy as the *Karel Doorman*. Yet another batch of A-4Ps were ordered for use by the Air Force during 1975 and these are intended to re-equip the remaining F-86F unit.

One of the Australian A-4G Skyhawks shortly after delivery to the RAN. This aircraft N13-154905 was then part of VC-724 at Nowra, NSW in 1968. (MAP)



The camouflage scheme introduced by Singapore on their unique TA-4S Skyhawks can be seen in this view. The aircraft, serialled 651 was photographed at Lemoore in 1976 whilst engaged in aircrew training. Of particular interest is the unusual cockpit arrangement of this version. (APN)

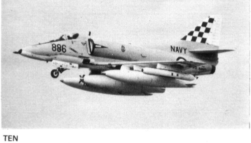
Australia

On 26 July 1967 Australia took delivery of the first examples of eight A-4Gs and two TA-4Gs which were the first new Skyhawks to be produced for export. These two versions are virtually identical to the A-4E and TA-4F then widely used by the US Navy and the single-seaters are frequently deployed on board HMAS *Melbourne* with VF-805 Squadron in the attack/interceptor role alongside the S-2E Tracker and Wessex which are utilised in the ASW role. When not deployed on the *Melbourne* these units are stationed at Nowra, NSW, which is the home base of the other Australian Skyhawk unit VC-724 which serves as the fighter ground attack and fleet requirements and trials unit operating all two-seaters and at least one single-seater alongside the MB326H. To supplement the earlier aircraft a total of eight refurbished ex US-Navy A-4Fs and two TA-4Fs were obtained early in 1971.

Israel

Also in 1967 Israel began to receive the first examples of a new variant, the A-4H, which introduced a number of features especially asked for by the IDF/AF. Amongst these were the installation of a braking parachute, which was later to be adopted by the USMC in the A-4M, and the replacement of the 20 mm Mk. 12 cannons by the 30 mm DEFA 552/553. Ammunition capacity was also slightly increased to 150 rounds per gun and this was also the first variant to possess the revised fin and rudder assembly which was later to be used by the A-4K/M and N. The initial order was for 48 aircraft and these were delivered during 1967–8. Subsequent deliveries involved a further 42 single-seaters and 10 examples of a two-seat operational trainer version known as the TA-4H. In 1969 these were joined in Israeli service by an initial batch (reportedly 25 aircraft) of ex-US Navy A-4Es and subsequent deliveries both before and after the October 1973 war are reported to have increased this total to around 60 aircraft with a fair number of these replacing aircraft lost in combat.

A Royal Australian Navy A-4G Skyhawk belonging to VF-805 when HMAS Melbourne visited the UK in 1977. The aircraft, equipped for in-flight 'buddy' refuelling, took part in the Greenham Common air show. (S. G. Richards)



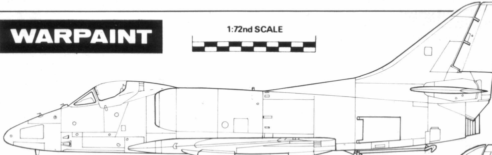
After the completion of 100 A/TA-4Hs production switched to the A-4N for which an initial contract, of approximately 90 aircraft, was placed in 1971. Externally almost identical to the USMC A-4M, the prototype (158726) flew for the first time on 12 June 1972. Most of the features originally incorporated into the A-4H design at Israeli request were retained but in addition it was equipped with a new navigation and weapons delivery system which included a Lear Siegler digital computer, Singer vertical platform and an Elliott Automation head-up display unit. The cockpit layout was also subjected to a number of revisions and initial deliveries began during the winter of 1972. Since then at least 117 have been received and these, in addition to previous deliveries of A-4E/H models, make Israel the largest export customer having obtained approximately 270 examples of the Skyhawk series.

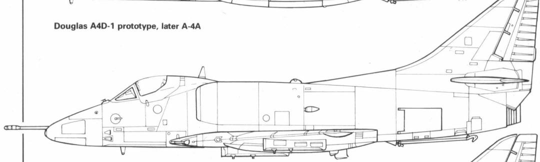
New Zealand

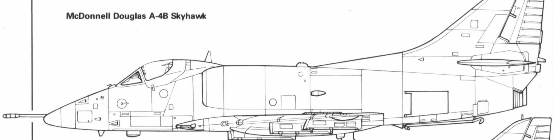
The fourth overseas country to obtain the Skyhawk was New Zealand who in early 1970 took delivery of the first of a batch of 10 A-4Ks and four TA-4Ks. Although essentially similar to the A-4F the A-4K differed slightly in that a braking parachute and different radio equipment were installed at the RNZAFs request and the modified fin assembly, previously introduced on the A-4H, was also featured. The A-4K currently provides the backbone of the RNZAF's strike force with nine aircraft equipping No. 75 Squadron at Ohakea whilst at least one A-4K and the three remaining two-seaters serve alongside a number of Strikemasters in the operational strike training and jet conversion role with No. 14 Squadron, also at Ohakea.

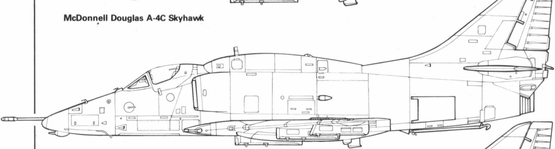
WARPAINT

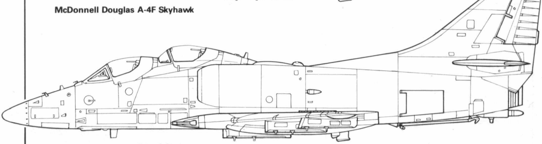
1:72nd SCALE


Douglas A4D-1 prototype, later A-4A


McDonnell Douglas A-4B Skyhawk


McDonnell Douglas A-4C Skyhawk


McDonnell Douglas A-4F Skyhawk


McDonnell Douglas TA-4S Skyhawk

AVIATION NEWS

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McDonnell Douglas A-4 Skyhawk

McDonnell Douglas A-4M Skyhawk

1:72nd SCALE

Inner face of main wheel door

Optional 30mm cannon fit

Inner face of main leg

Earlier model main wheel

Typical 450 gal. long-range tank on pylon

McDonnell Douglas TA-4F Skyhawk

Retrospective A-4M ECM fin cap

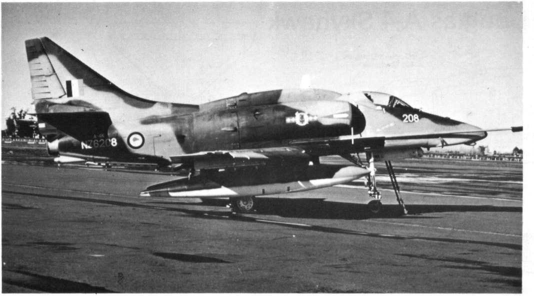
McDonnell Douglas A-4E Skyhawk

Windscreen, canopy and re-fuelling probe, pre-A-4M model

200 gal. long-range tank on centre-fuselage pylon

McDonnell Douglas A-4M Skyhawk

A
E
E
B
C
D
B
C
D
G
G
F
F
Flaps extended
Landing lamp stbd. only
E-E
G-G
F-F
C-C
D-D
A-A
B-B
Slats in open position
Narrow centre glazing bar
Blackout screen on wires



Many of the features later adopted by the US Marine Corps for the A-4M can be seen in this view of A-4K, NZ6208, of 75 Sqdn., Royal New Zealand Air Force, at Ohakea. (APN)

Singapore

Singapore joined the ranks of Skyhawk operators during the latter half of 1973 when the first of 40 refurbished ex-USN A-4Bs appeared as the A-4S. The first batch of eight aircraft were converted at the Lockheed Aircraft Services Facility, Ontario, California, and these aircraft initially remained in the USA, equipping a small training flight at Lemoore NAS, California. Later conversions were made, again by Lockheed, in Singapore, and much of the electronics, navigation and radio equipment installed is of British manufacture to aid standardisation. In addition to the single-seaters which now equip two strike squadrons, a further three aircraft were modified to serve as two-seat trainers under the designation TA-4S and these were also initially used at Lemoore in the training of future Singaporean Air Force instructors.

Kuwait

The sixth and, at the time of writing, last export customer is Kuwait who, in 1974, ordered a total of 30 A-4KU single-seaters and six TA-4KU two-seat trainers for delivery during the course of 1977-78 and these are intended to be employed in the strike role with two squadrons operating the type.

COMBAT USE

Combat use of the A-4 Skyhawk is extensive with both US Navy and Marine Corps units being heavily involved in operational service throughout the Vietnam war. The Israeli Air Force have also used the type widely in their frequent clashes with the neighbouring Arab states and in both of these theatres of operation the A-4 has proved itself to be of great value in the ground attack role. Its small size and manoeuvrability combine to make it a relatively difficult target to hit and even when damaged the Skyhawk has proved on countless occasions that it has the ability to take considerable punishment and still return safely to base. This is undoubtedly a key factor in its popularity with aircrew.

The introduction of the A-4 to combat duties came during the latter half of 1964 when both US Navy and Marine Corps units were deployed to South East Asia during the initial moves to counter the threat of a Communist take-over in South Vietnam. The Skyhawk was to remain in use in this area right up until the ceasefire of January 1973 flying many thousands of combat missions over all of Vietnam, Laos and Cambodia.

Naval operations were conducted from the aircraft carriers of Task Force 77 which, up until 1966, divided its forces with one carrier normally assigned to 'Dixie' station in the South China Sea and two on duty at 'Yankee' station in the Gulf of Tonkin. Strikes from 'Dixie' were invariably made against the lightly defended targets in the vicinity of the Mekong Delta and Saigon with each carrier normally spending about ten days in this position at the beginning of each cruise before moving north to 'Yankee' station from which operations against the heavily defended areas of North Vietnam were conducted.

The build-up of USAF air power in the south resulted in operations from 'Dixie' station being suspended in mid-1966 and from then on there were generally three carriers on combat duty in the Gulf of Tonkin.

Operations against the North were initially aimed at cutting North Vietnamese supply lines to the south and this involved attacks on choke points such as bridges, railway yards, river crossings and the various trails which abounded in this area. However, the North Vietnamese soon became adept at rapidly repairing these targets and were extremely skillful at camouflaging with the result that many points which had previously been attacked, and which were thought to have been destroyed, were in fact still in regular use. Consequently targets had to be attacked fairly frequently in order to effectively disrupt the North Vietnamese war effort and this placed great demands on the A-4 which until the advent of the A-7 in 1968 was the major US Navy attack aircraft type, and as a result of this, losses were fairly heavy.

The normal A-4 ordnance load for these missions was about 2,500 lb., usually comprising 500 lb. Mk. 82 Snakeye bombs or Zuni unguided air-to-surface missiles with a mix of these two frequently being employed. Missions were also flown against SA-2 surface-to-air missiles (SAM) and anti-aircraft sites with the Maxson AGM-12 Bullpup missile generally being used in attacks against these targets although the Shrike anti-radiation missile was frequently used in the flak-suppression role, as were 2,000 lb. bombs. In strikes against coastal shipping the Zuni was generally used.

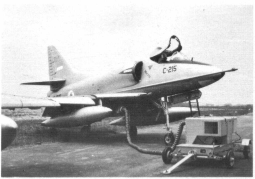
US Marine Corps

USMC operational use under the control of the 1st Marine Air Wing was primarily aimed at providing support for Marine and South Vietnamese ground troops within the 1 Corps area of operations which extended some 200 miles south from the demilitarized zone (DMZ) and which included the five northernmost provinces of South Vietnam. Even so, other regular strike missions were flown against targets just above the DMZ with most of these being directed against the Route 1 supply complex, one of the major North Vietnamese infiltration routes. Both Da Nang, the second largest city in the south, and Hue, the imperial city, were in this zone.

Marine Corps A-4 missions began in the late summer of 1964 following the Tonkin Gulf incident and were initially conducted from the base at Da Nang. But with the rapid build up of US forces early in 1965, it soon became apparent that, due to overcrowding at Da Nang, a second airfield would be required to support Marine air operations. After a brief search a suitable site was located some 50 miles south of Da Nang and construction of the new airfield, later to be known as Chu Lai, started in May 1965, initially on the SATS System (Short Airfield for Tactical Support) which had been developed by the USMC and which involved the preparation of an aluminium planking runway.

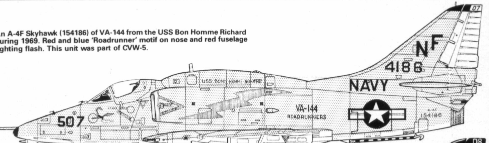
Less than a month later, on 1 June, operations began with VMA-225 undertaking the first strikes from the fledgling base which at that time had a mere 4,000 foot runway necessitating the frequent use of JATO in hot weather and the installation of arrester gear in order to avoid aircraft over-running on landing. Conditions at Chu Lai were inevitably of a rather primitive nature at this time but work on improving facilities continued and a 10,000 foot long concrete runway was eventually brought into use during 1966 enabling Phantom operations to be conducted in addition to the A-4s.

By the end of June 1965 three A-4 equipped attack squadrons were in residence as the major elements of the controlling organisation, Marine Aircraft Group 12 and during the period 1965–70 all Marine Corps A-4 operations in South Vietnam were conducted from Chu Lai with three to four squadrons normally being based there at any one time. During a short spell in late 1966 and early 1967 the maximum strength was attained with no less than five squadrons present (VMAs-121/211/214/223 and 311).

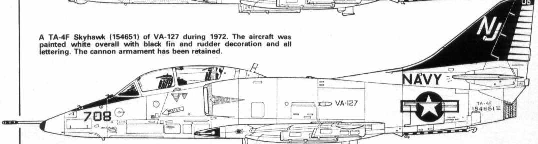


Illustrating the natural metal finish applied to aircraft of the Argentine Air Force is this view of A-4P, C-215 at Villa Reynolds in the late sixties. Subsequent deliveries were camouflaged but it is not known if this was retrospectively applied to the survivors of the original batch. (APN)

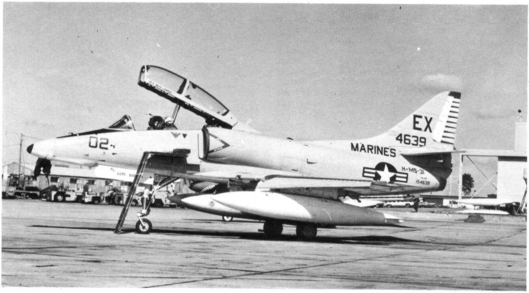
As already stated the primary task of Marine A-4 squadrons was that of ground support using various combinations of bombs, napalm and rockets against such targets as tanks, troops and weapons sites. Much use was made of the General Electric TPQ-10 radar control system which was designed specifically for operations in conjunction with the A-4 and which enabled weapons release to be made automatically in either bad weather conditions or when operating at night. In these circumstances the ground operator would feed the target data into the TPQ computer along with the aircraft's speed, altitude and type of ordnance carried in order to determine the precise weapons release point. On the A-4 the pilot would set the bomb sequencing switch and engage the automatic pilot into an altitude hold mode after lining up for the final run in to the target area. Radio signals from the TPQ system to the computer on the A-4 would then make any required directional corrections and bomb release would



An A-4F Skyhawk (154186) of VA-144 from the USS Bon Homme Richard during 1969. Red and blue 'Roadrunner' motif on nose and red fuselage lighting flash. This unit was part of CVW-5.



A TA-4F Skyhawk (154651) of VA-127 during 1972. The aircraft was painted white overall with black fin and rudder decoration and all lettering. The cannon armament has been retained.



Typical of the TA-4F Skyhawks used by the US Marine Corps headquarters squadrons is 154639/EX-02 of Beaufort-based H & MS-31 seen in 1972. (APN)

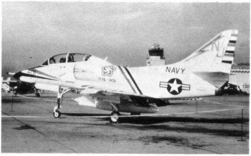
be triggered by an electrical signal from the ground controller. Despite being a relatively simple system there is little doubt that this method of operation was of great value in enabling targets to be successfully attacked, particularly during the monsoon season and at night.

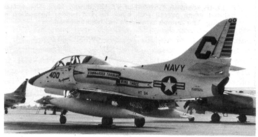
Another less well-known task in which the A-4 was frequently used was that of helicopter escort and it was Marine practice, where possible, to provide attack aircraft escorts in addition to the UH-1E Iroquois gunships. A strike normally involved the use of two attack aircraft, and the A-4 joined both the F-4 and F-8 in performing this task, which involved flying a 'daisy chain' pattern around the 'slicks' (troop carrying helicopters), so that neither of the two escorts were ever much more than three miles from the helicopters. In this role both the A-4 and F-4 were frequently fitted with the Hughes Mark 4 20 mm gun pod capable of a rate of fire of 4,000 rounds per minute and both types were able to carry two such pods complete with approximately 1,300 rounds of ammunition. Whilst the helicopters were on their way to the landing zone it was general practice to provide a further six attack aircraft to soften up the area before the helicopters' arrival and this duty was again shared with the F-4 and F-8. Yet another aspect of Skyhawk operations was that of forward-air-control and visual reconnaissance with a number of TA-4Fs being used for this purpose after replacing the TF-9s with Group Headquarters squadrons in late 1967. Smoke rockets were used for the purpose of target marking although a limited strike capability was retained with unguided air-to-ground rockets being used against minor targets.

The general cutback in US Vietnam-based units which started in 1969 did not affect activities at Chu Lai until early in 1970 when MAG-12 and VMA-211 were moved to Iwakuni, Japan, whilst VMA-223 returned to the States. The remaining A-4 squadron, VMA-311, remained in residence under the control of MAG-13 flying support and interdiction missions against targets in both North and South Vietnam. With the closure of Chu Lai in late summer 1970, VMA-311 went to Da Nang where it joined MAG-11 concentrating its energies in strikes against the Ho Chi Minh trail in Laos and these operations continued until May 1971 when the squadron rejoined MAG-12 at Iwakuni.

The last phase of USMC A-4 operations in Vietnam started in mid-May 1972 when, as a result of the major North Vietnamese spring offensive, the two A-4 squadrons of MAG-12 returned to South Vietnam, this time to Bien Hoa near Saigon with combat sorties beginning on 19 May 1972. This time the primary area of operations covered the southern half of the country and the area surrounding the border with Cambodia. Both VMA-211 and VMA-311 continued to fly strike missions in support of South Vietnamese forces until

Left: TA-4J, 154290/NJ-601 of VF-126 resplendent in a red, white and blue Bi-Centennial scheme at Miramar during October 1975. Below: TA-4J 158512/C-400 of VT-24 on the ramp at Alameda in the latter half of 1975. This aircraft was flown by the Commander of Training Wing Three, hence the added decoration. (MAP)





the cease fire became effective on 28 January 1973. VMA-311 had the doubtful honour of delivering the last A-4 load of ordnance over Cambodia shortly before the cease fire took effect.

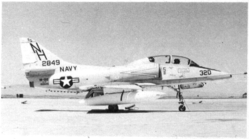
Middle East Skyhawks

Israel began to receive the A-4H late in 1967 with the first squadron becoming operational early in 1968 and the type soon attained combat status in a series of attacks against heavily defended terrorist bases on the east bank of the River Jordan. As with the US Navy and Marine Corps the Skyhawk is mainly employed on strike missions although it has demonstrated on a number of occasions that it is perfectly capable of defending itself in air-to-air combat and despite being handicapped by its relatively slow speed has nevertheless succeeded in downing examples of the MiG-17 and MiG-19.

Relatively little publicity was given to Skyhawk operations during the October 1973 Middle East conflict although it is known that many strike missions were flown with resulting heavy losses and that over 50 Israeli aircraft were destroyed during this period, the majority of these being downed by surface-to-air missiles and anti-aircraft gunfire. Despite the high loss rate the Skyhawk remains popular with aircrews and the Israeli Air Force have more than demonstrated their faith in the A-4 by continuing to purchase this type in considerable numbers.

MARKINGS

A wide variety of individual colour schemes have been worn by the various marks of the A-4 but space limitations sadly preclude the inclusion of many details of these. However, information concerning the overall paint schemes adopted for use by the various operators is included and these are dealt with by nationality for ease of reference.



Although seldom used by operational squadrons, at least one two-seater served with VA-192 during early 1970 and others are known to have flown with CVW-21 from the USS Hancock in 1975. The words 'World Famous Golden Dragons' appears on a yellow ground edged in black below the forward cockpit. The fin cap and fuselage band are also in yellow outlined in black.

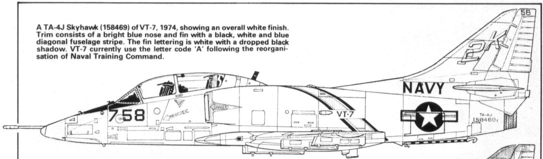
Argentina

Air Force – Two colour schemes have been applied to aircraft of the Air Force with the initial batch using an overall natural metal finish relieved only by the application of serial numbers and national insignia. The fuselage roundel is located on the rear fuselage and partly covers the air brakes whilst the tail marking is sited roughly half-way up the fin, forward of the rudder. Serial numbers are applied to the fuselage in two places namely behind the roundel and just below the cockpit. The second scheme, applied to later deliveries, consists of a green and brown camouflage pattern with natural metal undersides. Application of national insignia and serial numbers is identical to that of earlier aircraft.

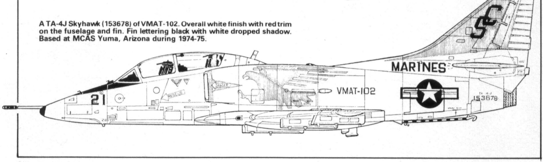
Navy – The colour scheme applied to aircraft of the Navy is virtually identical to that of the US Navy with grey upper surfaces and white undersides. National insignia appears to be confined to the rudder with an anchor marking being used on the fuselage in place of the roundel. The inscription 'NAVAL' appears in black on the rear fuselage over the air brake whilst the serial is positioned on the centre fuselage section directly aft of the jet intake warnings with the last two digits being repeated on either side of the nose cone.

Australia

The scheme adopted for the A-4s of the RAN is again similar to that of the US Navy, differing slightly in that the rudder



A TA-4J Skyhawk (158469) of VT-7, 1974, showing an overall white finish. Trim consists of a bright blue nose and fin with a black, white and blue diagonal fuselage stripe. The fin lettering is white with a dropped black shadow. VT-7 currently use the letter code 'A' following the reorganisation of Naval Training Command.



A TA-4J Skyhawk (153678) of VMAT-102. Overall white finish with red trim on the fuselage and fin. Fin lettering black with white dropped shadow. Based at MCAS Yuma, Arizona during 1974-75.

and upper aileron surfaces are gull grey not white. Fuselage roundels are once again sited at the rear and partially cover the air brake whilst the legend 'NAVY' is sited at the base of the vertical tail directly above the roundel. The serial and designation appears on the rear fuselage behind the roundel and is presented in full (eg N13-154904). Three digit numerical codings are applied to the nose in a similar position to that of USN aircraft and the last two digits of these codes are repeated at the top of the fin.

Israel

Aircraft of the IDF/AF employ a three-tone camouflage pattern of sand, light brown and olive green applied to the fuselage sides and upper surfaces whilst under surfaces are white. The 'Star of David' national insignia appears on the centre fuselage section slightly aft of the intake warning arrows and is repeated on upper and lower wing surfaces. Serial numbers are in black and appear to take the form of three figure numbers. On the A-4E these are located at the base of the fin just ahead of the elevators whilst on the A-4H/N series they are to be found on the nose section forward of the cockpit.

Kuwait

Precise details of the colour scheme adopted by Kuwaiti Skyhawks are unfortunately not available although it is known that a desert camouflage scheme consisting of various sand brown tones is in use and this presumably features either white or light blue undersurfaces.

New Zealand

The camouflage scheme in use by the RNZAF is a dark green, olive green and sand pattern over the upper surfaces with light grey undersides. Surprisingly external fuel tanks are white. Fuselage roundels are again superimposed over the air brakes with the fin flash appearing roughly in the centre with the lower edge in line with the base of the rudder. Roundels are also applied to both upper wing surfaces. Serial numbers and designations are presented in white on the rear fuselage aft of the roundel with the last three digits, again in white, being repeated just below the forward cockpit windows.

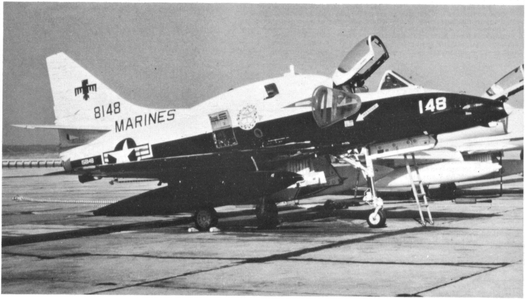
The use of reference markings for photographic purposes is a common feature on aircraft engaged in test duties but it is rare for these to constitute an entire colour scheme change as shown here. A-4M (158148) is the production prototype aircraft and wears the 'Iron Chicken' insignia of the Naval Weapons Evaluation Facility on the fin. The badge of the Naval Air Test Centre appears on the centre fuselage indicating the change of ownership in 1974. The basic colour scheme was black and white. (Author)

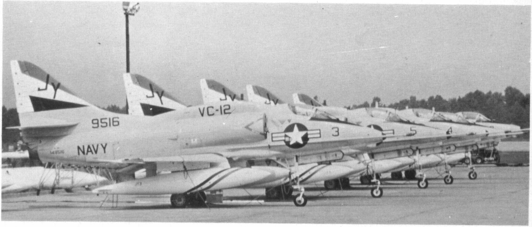
Singapore

The initial colour scheme employed was basically identical to that of the USN with grey topsides and gloss white undersurfaces. A grey anti-dazzle panel also appeared forward of the cockpit. This has recently been replaced by a camouflage scheme consisting of dark green and dark brown uppersurfaces with white undersides. Both schemes feature national insignia which appears in the shape of roundels on the fuselage sides just ahead of the air brakes. Serial and designation are presented in either black or white, depending on the overall colour scheme, just aft of the air brakes with the last two digits of the serial being repeated on the nose cone just forward of the cockpit.

United States

Colour schemes of USN/MC aircraft are many and varied but in the majority of cases two schemes are used with all single-seaters and TA-4Fs having light gull grey fuselage sides and top, vertical tail surfaces, and upper wing and horizontal tail surfaces. Undersurfaces of the wing and horizontal tail are gloss white as are the upper control surfaces and rudder. Anti-dazzle panels, when present, are matt black whilst areas under flaps, slats and air brakes are gloss red. Positioning of national insignia varies according to mark with the A-4A/B/C and 'L all carrying the star and bar on the forward fuselage sides below the cockpit. In addition some A-4Es (notably of VA-12 and VA-72) were marked in this way. The star and bar marking also appeared on the port upper and starboard lower wing surfaces. Navy and Marine titles are worn on the rear fuselage superimposed over the air brakes and the last four digits of the serial generally appear at the base of the fin ahead of the elevators. Station names or code letters are worn on the vertical tail above the elevators and are frequently incorporated into the unit insignia. Numerical codings invariably appear in full on the nose section sides ahead of the cockpit and are often repeated



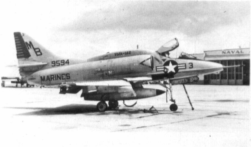


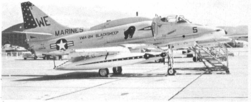
in abbreviated form in a number of places including the fin, rudder, fuel tanks and flaps and in many cases the full code letter and number combination is also repeated on the upper surfaces of the starboard wing. Serial number and designation are always presented in full on the rear fuselage section near the tail pipe.

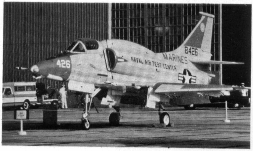
The great majority of A-4Es and all subsequent versions utilised a slightly different method of presentation of national insignia and titles but with the exception of the following variations the above rules were adhered to. On the later versions the star and bar marking was repositioned to the rear fuselage and superimposed over the air brake resulting in the Navy or Marine titles being moved to the base of the fin ahead of the elevators. On these variants the last four digits of the serial number usually appears on the fin above the elevators although in many instances they are completely omitted.

The TA-4J differs from other marks of the Skyhawk in that it uses an overall white high gloss scheme, frequently featuring liberal applications of high visibility red to the fin, nose and wing surfaces. The presentation of national insignia and titles follow the guidelines already laid down for the A-4E and subsequent variants, whilst codings are applied in accordance with the well established patterns already mentioned.

Above: Five A-4Ls of Reserve Composite Squadron VC-12 seen at Oceana in August 1975 shortly after moving from Detroit. (Author) Below: The dorsal avionics pack installed during conversion from A-4C to A-4L configuration is clearly visible in this view of 149594/MB-3 of Reserve Squadron VMA-142 at Jacksonville. (MAP) Centre: Prominent amongst the changes introduced on the A-4M are the revised fin contours, bubble canopy and shorter, angled refuelling probe. The aircraft, 158431/WE-5 belonged to VMA-214 at El Toro in 1973. (APN) Bottom: A-4M 158426 seen at Patuxent River in September 1975 whilst in use by the Strike Aircraft Directorate of the Naval Air Test Centre. The aircraft features the ECM pod and modified top to the fin plus a number of nose mounted sensors. (Author)







Skyhawk allocations to units

US Navy

FLEET ATTACK SQUADRONS

The following squadrons are all known to have used the Skyhawk at various times. Although many of these squadrons are still in commission, most have re-equipped with more modern types such as the A-7 Corsair, and details of these changes are included. It is not possible to provide details of Air Wing assignments due mainly to the great number of changes which occurred during the course of the 1960s. Where known, squadron nicknames are included.

Sqdn	*Nicknames*	*Remarks*
VA-12	Flying Ubangis	To A-7E *circa* 1971
VA-15	Valions	Temporarily designated VA-67 (15/8/68–10/3/69) During transition to A-7B
VA-22	Fighting Redcocks	To A-7E early 1971
VA-23	Black Knights	Decommissioned 21/3/70
VA-34	Blue Blasters	Decommissioned 29/5/69 Reformed 1/1/70 with A-6A
VA-36	Road Runners	Decommissioned 1/8/70
VA-43	Challengers	Renumbered as VF-43 during 1973
VA-44	Hornets	Decommissioned *circa* 1970
VA-45	Blackbirds	Current with TA-4J at Cecil Field, Florida

VA-46	Clansmen	To A-7B during 1968
VA-55	War Horses	Decommissioned 12/12/75
VA-56	Champions	To A-7B by 5/69
VA-64		Decommissioned 2/1/70
VA-66	Waldos	To A-7E by 1971
VA-72	Blue Hawks	To A-7B by 12/68
VA-76	Fighting Spirits	Decommissioned in late 1960s
VA-81	Bravos	To A-7E by 11/70
VA-83	Rampagers	To A-7E by 11/70
VA-86	Sidewinders	To A-7A *circa* mid-1968
VA-93	Blue Blazers	To A-7B *circa* 5/69
VA-94	Shrikes	To A-7E early 1971
VA-95	Sky Knights	Decommissioned 1/4/70. Reformed 31/3/72 with A-6A
VA-106	Gladiators	Decommissioned 12/69
VA-112	Broncos	Decommissioned in late 1969
VA-113	Stingers	To A-7B by 8/69
VA-125	Rough Raiders	To A-7A/B by 1970
VA-127	Royal Blues	Current with TA-4J at Lemoore, California
VA-133		Decommissioned 10/62
VA-134	Scorpions	Decommissioned 10/62
VA-144	Roadrunners	Decommissioned 29/1/71
VA-146	Blue Diamonds	To A-7B in 1968
VA-152	Mavericks	Decommissioned 29/1/71
VA-153	Blue Tail Flies	To A-7A by 3/70
VA-155	Silver Foxes	To A-7B by 3/70
VA-163		Decommissioned in 1969
VA-164	Ghost Riders	Decommissioned 12/12/75
VA-172	Blue Bolts	Decommissioned 15/1/71
VA-192	Golden Dragons	To A-7E by 5/70
VA-195	Dambusters	To A-7E mid-1970
VA-212	Rampant Raiders	Decommissioned 12/12/75
VA-216	Black Diamonds	Decommissioned 1/8/70

FLEET FIGHTER SQUADRONS

All the following squadrons have operated the Skyhawk in various aspects of training, all being permanently shore based.

Sqdn	*Nickname*	*Variants*	*Base*	*Remarks*
VF-43	Challengers	A-4E, TA-4J	Oceana, Va.	Was VA-43 until 1973
VF-101	Grim Reapers	A-4E, TA-4J	Det. Key W.	Also used F-4J, F-14A
VF-126	Fighting Seahawks	TA-4J, A-4F	Miramar, Cal.	
VF-171		A-4E, TA-4J	Det. Key W.	Commissioned in 1977 through redesignation of VF-101

RECONNAISSANCE ATTACK SQUADRON

A small number of TA-4J two-seaters have been used by the squadron with responsibility for training of replacement RA-5C Vigilante aircrews

Sqdn	*Nickname*	*Variant*	*Base*
RVAH-3	Dragons	TA-4J	Key West, Florida

TACTICAL ELECTRONIC WARFARE SQUADRON

A total of four modified two-seaters currently serve with the sole squadron engaged in the provision of ECM "aggressor" aircraft for use in training of both major fleets.

Sqdn	*Nickname*	*Variant*	*Base*	*Remarks*
VAQ-33	Night Hawks	EA-4F	Norfolk, Va.	Also uses ERA-3B, F-4, EC-121

FLEET COMPOSITE SQUADRONS

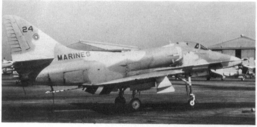
A number of these squadrons employ the A-4 alongside other types on such duties as target towing and communications, with several different marks frequently being used by a single squadron.

Sqdn	*Nicknames*	*Variants*	*Base*
VC-1	Unique Antiquers	A-4E, TA-4J	Barbers Point, Hawaii
VC-2		A-4C/L, TA-4J	Oceana, Virginia
VC-4	Usus Ubiques	A-4C	Oceana, Virginia decommissioned 1970
VC-5	Workhorse of the Fleet	A-4E, TA-4J	Kadena, Okinawa
VC-7	Tally-hoers	A-4C/F/L, TA-4J	Miramar, California
VC-8		A-4C	Roosevelt Roads, Puerto Rico
VC-10	Challengers	TA-4J	Guantanamo Bay, Cuba

SHIPBOARD FIGHTER SQUADRON

One squadron was used to provide detachments of A-4s for use by the Anti-submarine Warfare Aircraft Carriers and these were intended to provide limited attack and defence capability.

Sqdn	*Variants*	*Remarks*
VSF-1	A-4C	Decommissioned 2/1/70



Seen at Miramar during October 1975 is the USMC contribution to the Navy organised Fighter Weapons School. The aircraft is A-4E 150009/24 and the colour scheme is a three-toned brown with white undersides.

AIR TEST AND EVALUATION SQUADRONS

The evaluation squadron with primary responsibility for attack aircraft types, VX-5, has at one time or another operated most, if not all, variants of the A-4 although at the time of writing only two versions are in use. VX-4, with responsibility for fighter types also includes a couple of TA-4Js in its inventory.

Sqdn	*Nicknames*	*Variants*	*Base*	*Remarks*
VX-4	Evaluators	TA-4J	Point Mugu, California	Also uses F-4, F-14
VX-5	Vampires	A-4M, TA-4J	China Lake, California	Also uses A-6, A-7, AH-1J

FIGHTER WEAPONS SCHOOL—TOP GUN FLIGHT

This organisation operates a small number of A-4Es, one TA-4J, and several T-38s and F-5s, as aggressor aircraft to enable fighter crews to engage in simulated combat situations. Since its formation in the late 1960s the unit has been based at Miramar, California.

TRAINING SQUADRONS

Naval Air Training Command was reorganised during the early 1970s and this resulted in a number of squadrons changing equipment and, eventually, in the introduction of an entirely new Command structure with units being organised into Training Wings. In the table below units are shown by Training Wing with details of old code, previous types and bases being included where necessary.

Training Wing One	–	Meridian, Mississipi. New code 'A'
VT-7	TA-4J	Old fin code '2K'. Used T-2 prior to reorganisation
Training Wing Two	–	Kingsville, Texas. New code 'B'
VT-21	TA-4J	Old fin code '3E'
VT-22	TA-4J	Old fin code '3F'
VT-23	TA-4J	Old fin code '3H'. Has used T-2C since reorganisation
JTTU	TA-4J	Old fin code '3D'. Jet Transition Training Unit
Training Wing Three	–	Chase Field Texas. New code 'C'
VT-24	TA-4J	Old fin code '3K'
VT-25	TA-4J	Old fin code '3J'
Training Wing Six	–	Pensacola, Florida. New code 'F'
VT-4	TA-4J, T-2C	Old fin code '2F'. Received TA-4J in reorganisation
VT-86	TA-4J, T-39D	Old fin code '4B'. Formerly with Naval Technical Training Command at Glynco, Georgia. To Pensacola during 1974

RESEARCH AND TEST ORGANISATIONS

Several organisations engaged in various aspects of test work operate the A-4 from a number of locations throughout the USA. Space limitations unfortunately do not permit the inclusion of more than brief details of these.

Naval Air Development Centre	Johnsville, Warminster, Pa.
Naval Air Test Centre	Patuxent River, Maryland
Naval Air Test Facility	Lakehurst, New Jersey
Naval Test Pilots' School	Patuxent River, Maryland
Naval Weapons Centre	China Lake, California
Naval Weapons Evaluation Facility	Kirtland, New Mexico
Pacific Missile Test Centre	Point Mugu, California

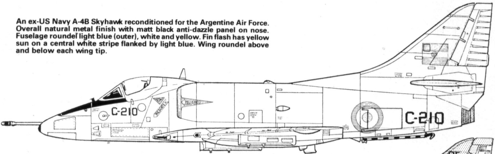
AEROBATIC TEAM

The well known Blue Angels aerobatic team have operated the A-4F Skyhawk since 1973, from their home base at Pensacola, Florida. The team normally operate six aircraft throughout the display season and these are unusual in that they do not carry the dorsal avionics pack normally featured on the A-4F. A single TA-4J is also used.

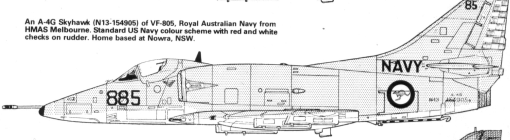
NAVAL AIR RESERVE

A dozen Naval reserve squadrons have operated the A-4 since the reorganisation of reserve forces in 1970. At the present time only two units are still equipped with the A-4

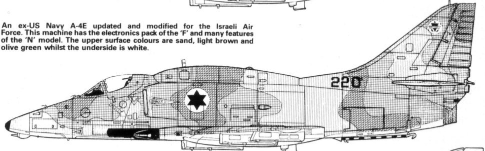
An ex-US Navy A-4B Skyhawk reconditioned for the Argentine Air Force. Overall natural metal finish with matt black anti-dazzle panel on nose. Fuselage roundel light blue (outer), white and yellow. Fin flash has yellow sun on a central white stripe flanked by light blue. Wing roundel above and below each wing tip.



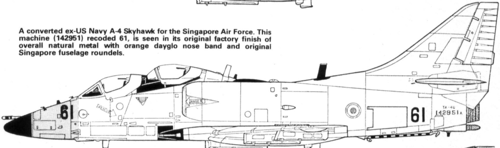
An A-4G Skyhawk (N13-154905) of VF-805, Royal Australian Navy from HMAS Melbourne. Standard US Navy colour scheme with red and white checks on rudder. Home based at Nowra, NSW.



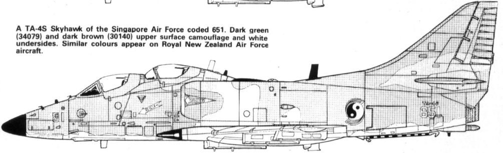
An ex-US Navy A-4E updated and modified for the Israeli Air Force. This machine has the electronics pack of the 'F' and many features of the 'N' model. The upper surface colours are sand, light brown and olive green whilst the underside is white.

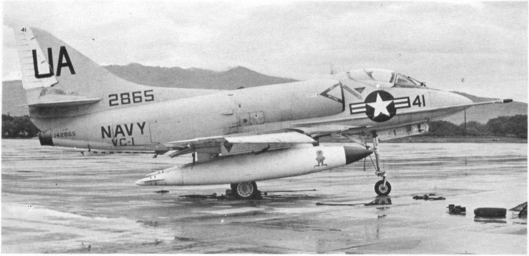


A converted ex-US Navy A-4 Skyhawk for the Singapore Air Force. This machine (142951) recoded 61, is seen in its original factory finish of overall natural metal with orange dayglo nose band and original Singapore fuselage roundels.



A TA-4S Skyhawk of the Singapore Air Force coded 651. Dark green (34079) and dark brown (30140) upper surface camouflage and white undersides. Similar colours appear on Royal New Zealand Air Force aircraft.





Amongst the last examples of A-4Bs in service with front-line fleet units were the small number of aircraft operated by VC-1 at Barbers Point, including 142865/UA-41 photographed in October 1968. (APN)

RESERVE ATTACK SQUADRONS

Initially all Naval Reserve attack squadrons were equipped with the A-4C/L but most of these have gradually received the A-7 Corsair. In line with the regular forces, these squadrons are organised into Reserve Air Wings, with one wing being attached to each of the two major fleets.

Sqdn	*Nicknames*	*Base*	*Remarks*
VA-203	Blue Dolphins	Jacksonville, Fl.	Used A-4L until re-equipped with A-7A in 1974
VA-204	Terci Pelos	Memphis, Ten.	Used A-4L until re-equipped with the A-7 in late 1977
VA-205	Falcons	Atlanta, Georgia	Used A-4L until re-equipped with A-7B in summer 1975
VA-209	Chiefs	Glenview, Ill.	Used A-4L until deactivated *circa* 1972
VA-210		South Weymouth, Mas.	Used A-4L until deactivated *circa* 1972
VA-303	Golden Hawks	Alameda, Cal.	Used A-4C/L until re-equipped with A-7A *circa* 1971
VA-304	Firebirds	Alameda, Cal.	Used A-4C until re-equipped with A-7A *circa* 1971
VA-305	Draggers	Point Mugu, Cal.	Used A-4C until re-equipped with A-7A *circa* 1971

RESERVE COMPOSITE SQUADRONS

Two composite squadrons were commissioned on 1 September 1973, with VC-13 initially using the F-8Hs previously operated by the recently decommissioned VSF-76 and VSF-86. These were soon exchanged for the A-4L.

Sqdn	*Nickname*	*Variant*	*Base*	*Remarks*
VC-12		A-4L TA-4J	Oceana, Virginia	Relocated from Detroit in 1975
VC-13	Saints	A-4L TA-4J	Miramar, Cal.	Initially operated the F-8H at New Orleans.

RESERVE SHIPBOARD FIGHTER SQUADRONS

Two such squadrons were formed during 1970 in order to provide some measure of fighter capability for the two Reserve ASW Carrier Air Groups and these initially used the A-4C, although these were soon traded for the F-8H. Both squadrons eventually decommissioned in 1973, providing the nucleus for composite squadron VC-13.

Sqdn	*Variant*	*Base*	*Remarks*
VSF-76	A-4C	New Orleans, La.	Re-equipped with F-8H
VSF-86	A-4C	New Orleans, La.	Re-equipped with F-8H

US Marine Corps

MARINE ATTACK SQUADRONS

A total of 14 squadrons have operated the Skyhawk at various times, with five presently equipped with this type. In the table below details of all are included along with present equipment and base details where squadrons have re-equipped.

Sqdn	*Nicknames*	*Base*	*Remarks*
VMA-121	Green Knights	Iwakuni, Japan	To A-6A in 1968 as VMA (AW)-121. Now operates A-6E
VMA-211	Wake Island Avengers	El Toro, Calif.	A-4M
VMA-212	Lancers	Kaneohe Bay, Hi.	To F-8 in 1963 as VMF-212. Now has F-4J as VMFA-212
VMA-214	Black Sheep	Iwakuni, Japan	A-4M
VMA-223	Bulldogs	Yuma, Ariz.	A-4M
VMA-224	Bengals	Cherry Point, NC	To A-6A 11/66 as VMA(AW)-224. Now operates A-6E
VMA-225		Deactivated in 1973	To A-6A 4/66 as VMA(AW)-225
VMA-242	Bats	El Toro, Cal.	To A-6A 10/64 as VMA(AW)-242. Now operates A-6E
VMA-311	Tomcats	El Toro, Calif.	A-4M
VMA-324	Vagabonds	Deactivated in 1974	
VMA-331	Bumblebees	Cherry Point, NC.	A-4M
VMA-332	Polkadots	Cherry Point, NC.	To A-6A 8/68 as VMA(AW)-332. Now operates A-6E
VMA-343		Deactivated in 1961	
VMA-533	Hawks	Cherry Point, NC	To A-6A 7/65 as VMA(AW)-533 Now operates A-6E

MARINE TRAINING SQUADRONS

Three training squadrons have used the A-4, with two currently being in commission.

Sqdn	*Base*	*Remarks*
VMAT-102	Yuma, Arizona	A-4E/F/M, TA-4J
VMT-103	Deactivated	Deactivated *circa* 1973 when combined with VMAT-102
VMAT-203	Cherry Point, NC	A-4M, TA-4J, Formerly VMT-203. Now operates AV/TAV-8A

HEADQUARTERS AND MAINTENANCE SQUADRONS

The following H&M squadrons have all used the TA-4F at various times although not all are currently equipped with this type. Units currently thought to be using the TA-4F are marked with an asterisk.

Sqdn	*Base*	*Sqdn*	*Base*
H&MS-10	Yuma, Arizona	H&MS-24*	Kaneohe Bay, Hawaii
H&MS-11*	El Toro, California	H&MS-31*	Beaufort, SC
H&MS-12*	Iwakuni, Japan	H&MS-32	Cherry Point, N.C.
H&MS-13*	El Toro, California	H&MS-33	Deactivated *circa* 1973
H&MS-14*	Cherry Point, NC		
H&MS-15	Iwakuni, Japan	H&MS-37	El Toro, California

RESEARCH AND TEST ORGANISATIONS

A small number of USMC A-4s have served with the following test facilities.

Naval Air Test Centre	Patuxent River, Maryland

Pacific Missile Test Centre SOES (Station Operations and Engineering Squadron)	Point Mugu, California Quantico, Virginia (Four A4D-2s used in SATS trials in 1962 – information wanted concerning this and other use of A-4)

FIGHTER WEAPONS SCHOOL – TOP GUN FLIGHT

A single A-4E serves with the Top Gun Flight at Miramar alongside the Navy aircraft.

MARINE RESERVE ATTACK SQUADRONS

Some 11 Marine Reserve attack squadrons have used the A-4 at various times, although with the reduction in Reserve forces, five of these have decommissioned in recent years. A significant reorganisation of the Reserve forces took place in 1971–2, resulting in the old number/letter codes being replaced by two letter codings and in the table below the old coding details are included in the remarks column.

Sqdn	*Code*	*Base*	*Variant*	*Remarks*
VMA-124	QP	Memphis, Tennessee	A-4E	Formerly coded '5M'
VMA-131	QG	Willow Grove, Penn.	A-4E	Formerly coded '5R'(at Floyd Bennett), and '5W' (at Willow Grove)
VMA-132	—	Deactivated pre 1971	—	Coded '5R' at Floyd Bennett
VMA-133	ME	Alameda, Cal.	A-4F	Formerly coded '5G'
VMA-134	MF	El Toro, Cal.	A-4F	Formerly coded '5L' (at Los Alamitos and El Toro). Used 'QV' briefly
VMA-141	—	Deactivated pre 1971	—	Coded '5G' at Alameda
VMA-142	MB	Jacksonville, Florida	A-4F	Formerly coded '5F'
VMA-143	—	Deactivated pre 1971	—	Coded '5X' at New Orleans
VMA-233	—	Deactivated pre 1971	—	Coded '5S' at Norfolk
VMA-322	QR	South Weymouth.	A-4E	Formerly coded '5Z'
VMA-543	MD	Deactivated in 1974	—	Coded '5V' at Glenview

RESERVE HEADQUARTERS AND MAINTENANCE SQUADRONS

At least one Reserve H&M squadron has used the TA-4J, and it seems likely that others may have operated this type in small numbers.

Sqdn	*Code*	*Base*	*Variant*
H&MS-49	QZ	Willow Grove, Penn.	TA-4J

US NAVY/MARINE CORPS RESERVES BEFORE 1971 REORGANISATION

For many years USN reserve activities were the responsibility of Reserve Air Wings (RAW) located at a great number of USN airfields. In most cases each RAW controlled a number of squadrons engaged in various tasks such as ASW, attack, patrol and fighter duties and each Wing used a combined number/letter code (eg 7W) for purposes of identification and this code was applied to the fin of all aircraft within a particular RAW. With the appearance of later marks of Skyhawk a great number of A-4B/C were issued to the various attack squadrons and these served throughout the sixties until the Reserve Force re-organisation which took place in 1970–1. For the record, details of the Reserve Air Wings are included but it must be pointed out that not all operated the A-4. Only those wings which remained in commission during the 1960s are included.

Sqdn	*Base*	*Code*
RAW-66	Andrews, Maryland	6A
RAW-67	Atlanta, Georgia	7B
RAW-70	Dallas, Texas	7D
RAW-72	Glenview, Illinois	7V
RAW-73	Grosse Ile, Michigan, later to Selfridge, Michigan	7Y
RAW-74	Jacksonville, Florida	6F
RAW-75	Lakehurst, New Jersey	6N
RAW-77	Los Alamitos, California	7L
RAW-79	Memphis, Tennessee	6M
RAW-81	Minneapolis, Minnesota	7E
RAW-82	New Orleans, Louisiana	7X
RAW-83	Brooklyn, New York	7R
RAW-86	Norfolk, Virginia	6S
RAW-87	Alameda, California	6G
RAW-88	Olathe, Kansas	7K
RAW-89	Seattle, Washington	7T
RAW-91	South Weymouth, Massachusetts	7Z
RAW-93	Willow Grove, Pennsylvania	7W

USMC reserve activities were largely conducted from the same bases with, in most cases, a slight variation in the fin coding pattern. The same letter was used but, in order to signify a Marine reserve unit this was prefixed by the number '5' (eg a Marine reserve squadron at Dallas would be coded '5D'). During the mid-sixties a great many fighter and attack types were inscribed 'Navy-Marines' and this indicated that the aircraft concerned were used by both Navy and Marine reserve units at the same base. In these cases the Navy fin code was generally retained.

NARU FLIGHTS

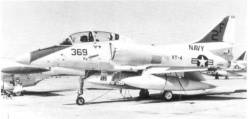
It should be pointed out that in a number of cases the codings referred to above can still be seen today, albeit in much reduced numbers. Each of the major centres of Naval Reserve flying activities possesses a Naval Air Reserve Unit and each of these appear to operate a small number of aircraft on administrative duties with the US-2, TA-4J and T-33B generally being used. Among the stations known to have used the TA-4J are Atlanta (7B), Jacksonville (6F), and Memphis (6M).

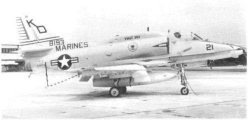
A-4 SKYHAWK PRODUCTION DETAILS

It was recently announced that production of the Skyhawk, in the absence of any further export orders, is currently scheduled to cease in October 1978 by which time a total of 2,978 aircraft of all variants will have been built.

The listing which follows includes details of 2,960 aircraft with the remaining 18 being accounted for by those currently in production for the US Marine Corps

Version	*Bu. No.*	*Number*	*Remarks*
XA-4A(XA4D-1)	137812	1	
A-4A(A4D-1)	137813–137831	19	
A-4A(A4D-1)	139919–139970	52	
A-4B(A4D-2)	142082–142141	60	Conversions to A-4P/Q/S
A-4A(A4D-1)	142142–142235	94	
A-4B(A4D-2)	142416–142423	8	Conversions to A-4P/Q/S
A-4B(A4D-2)	142674–142953	280	Conversions to A-4P/Q/S
A-4B(A4D-2)	144868–145061	194	Conversions to A-4P/Q/S
A-4C(A4D-2N)	145062–145146	85	Conversions to A-4L/ TA-4S
A-4C(A4D-2N)	147669–147849	181	Conversions to A-4L
A-4C(A4D-2N)	148304–148317	14	Conversions to A-4L
A-4C(A4D-2N)	148435–148612	178	Conversions to A-4L
A-4E(A4D-5)	148613–148614	2	Converted A4D-2N/A-4C
A-4C(A4D-2N)	149487–149646	160	Conversions to A-4L
A-4E(A4D-5)	149647–149666	20	Some to Israeli Air Force
A-4E(A4D-5)	149959–150138	180	Some to Israeli Air Force
A-4C(A4D-2N)	150581–150600	20	Conversions to A-4L
A-4E(A4D-5)	151022–151201	180	Some to Israeli Air Force
A-4E(A4D-5)	151984–152100	117	Some to Israeli Air Force
A-4F	152101	1	Converted A4D-5/A-4E
TA-4E	152102–152103	2	Redesignated TA-4F
TA-4F	152846–152878	33	Conversions to TA-4J
TA-4F	153459–153531	73	Conversions to TA-4J
TA-4F	153660–153690	31	Conversions to TA-4J
A-4F	154172–154217	46	
TA-4F	154287–154343	57	Conversions toTA-4J
TA-4F	154614–154657	44	Conversions to TA-4J, two to Royal Australian Navy
A-4G	154903–154910	8	To Royal Australian Navy
TA-4G	154911–154912	2	To Royal Australian Navy
A-4F	154970–155069	100	Some to Royal Australian Navy
TA-4J	155070-	1	
TA-4F	155071	1	
TA-4J	155072–155119	48	
A-4H	155242–155289	48	To Israeli Air Force
TA-4J	156891–156950	60	
A-4H	157395–157428	34	To Israeli Air Force
TA-4H	157429–157434	6	To Israeli Air Force
A-4K	157904–157913	10	To Royal New Zealand Air Force
TA-4K	157914–157917	4	To Royal New Zealand Air Force
A-4H	157918–157925	8	To Israeli Air Force
TA-4H	157926–157929	4	To Israeli Air Force
TA-4J	158073–158147	75	
A-4M	158148–158196	49	
A-4M	158412–158435	24	
TA-4J	158453–158527	75	Some to Israeli Air Force
TA-4J	158712–158723	12	
A-4N	158726–158743	18	To Israeli Air Force
A-4N	159035–159052	18	To Israeli Air Force
A-4N	159075–159098	24	To Israeli Air Force
TA-4J	159099–159104	6	
A-4M	159470–159493	24	
A-4N	159515–159545	31	To Israeli Air Force
TA-4J	159546–159556	11	To Israeli Air Force
A-4M	159778–159790	13	
TA-4J	159795–159798	4	
A-4N	159799–159824	26	To Israeli Air Force
A-4M	160022–160045	24	
A-4KU	160180–160209	30	To Kuwait Air Force
TA-4KU	160210–160215	6	To Kuwait Air Force
A-4M	160241–160264	24	
A-4M		18	On order for USMC
Total production to date		2,978	





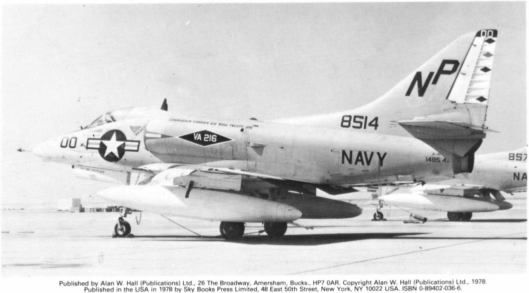
Left: The alpha-numeric fin codes used by training units until 1975 are featured in this TA-4J, 156902/2F-369 of VT-4, Pensacola, October 1974. (MAP) Above: In addition to operational squadrons the A-4M has also been used by both Marine Attack Training Squadrons represented by 158193/KD-21 of VMAT-203 at Cherry Point in 1972. (APN)

CODINGS

The listing which follows is a compilation of all fin codings known to have been applied to the A-4 and is, as far as is known, complete. Where codings are currently used by Skyhawks, these are marked with an asterisk.

AA	CVW-17
AB	CVW-1
AC	CVW-3
AD*	RCVW-4 until decommissioned when used by Atlantic Training Squadrons
AE	CVW-6 – since 1962
AF	CVW-6 - until 1962. From 1970 on has been used by units of CVWR-20
AG	CVW-7
AH	CVW-16
AJ	CVW-8
AK	CVW-10
AS	CVSG-52
AT	CVSG-54
AU	CVSG-56
AV	CVSG-58
AW	CVSG-60. From 1970 on has been used by units of CVSGR-70
CE	VMA-225
CF*	VMA-211
CN*	H&MS-14
DA*	H&MS-32
DT	VMA-242
DX	VMA-324
EA	VMA-332
ED	VMA-533
EW*	H&MS-24
EX*	H&MS-31
GD*	VAQ-33
GF*	VC-8
GJ*	RVAH-3
JE*	VC-2
JF	VC-4
JH*	VC-10
JY*	VC-12
KD*	VMAT-203, ex VMT-203
MB*	VMA-142
MD	VMA-543
ME*	VMA-133
MF*	VMA-134
ND	CVWR-30
NE	CVW-2
NF	CVW-5
NG	CVW-9
NH	CVW-11
NJ*	RCVW-12 until decommissioned when used by Pacific Training Squadrons
NK	CVW-14
NL	CVW-15
NM	CVW-19
NP	CVW-21
NS	CVSG-53
NT	CVSG-59
NU	CVSG-55
NV	CVSG-57
NW	CVSGR-80
QF	H&MS-37
QG*	VMA-131
QP*	VMA-124
QR*	VMA-322
QV	VMA-134, later recoded 'MF'
QZ*	H&MS-49
SC*	VMAT-102
SD	VMT-103
SE	H&MS-10
TM*	H&MS-11
UA*	VC-1
UF*	VC-5
UH*	VC-7
UX*	VC-13
VK	VMA-121
VL*	VMA-331
WA*	H&MS-12
WD	VMA-212
WE*	VMA-214
WK	VMA-224
WL*	VMA-311
WM	H&MS-33
WP*	VMA-223
XE*	VX-5
XF*	VX-4
YU*	H&MS-13
YV	H&MS-15
A*	Training Wing One – VT-7
B*	Training Wing Two – VT-21/22 and JTTU
C*	Training Wing Three – VT-24/25
F*	Training Wing Six – VT-4/86
2F	VT-4
2K	VT-7
3D	JTTU
3E	VT-21
3F	VT-22
3H	VT-23
3J	VT-25
3K	VT-24
4B	VT-86
5F	VMA-142
5G	VMA-133, VMA-141
5L	VMA-134
5M	VMA-124
5R	VMA-131, VMA-132
5S	VMA-233
5V	VMA-543
5W	VMA-131, formerly '5R'
5X	VMA-143
5Z	VMA-322
6F*	RAW-74, later NARU Jacksonville
6G*	RAW-87, later NARU Alameda
6H	NARU North Island
6M*	RAW-79, later NARU Memphis
6S	RAW-86
7B*	NARU Atlanta
7K	RAW-88
7L	RAW-77
7R	RAW-83
7V	RAW-72
7X	RAW-82
7Z	RAW-91

In common with many other units VA-216 saw extensive combat duty whilst operating as part of CVW-21 aboard the USS Hancock. Eleven mission symbols are visible below the cockpit of this A-4C 148514/NP-00 taken at Lemoore in 1966. (APN)



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